

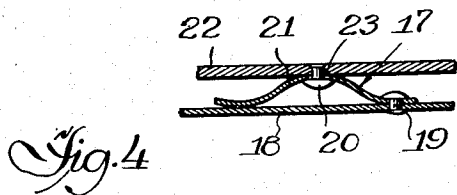
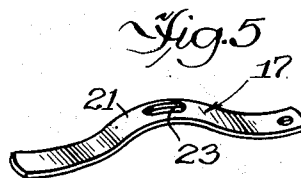
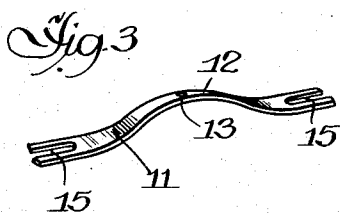
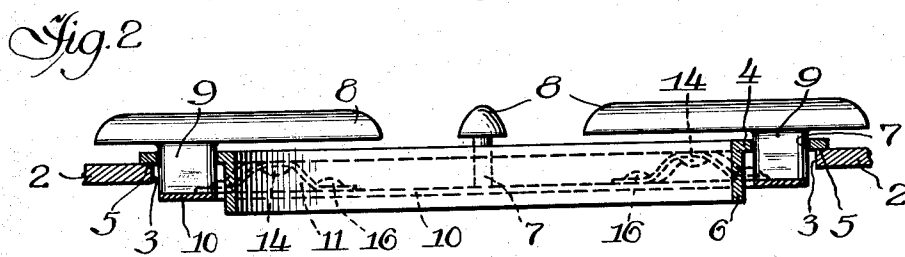
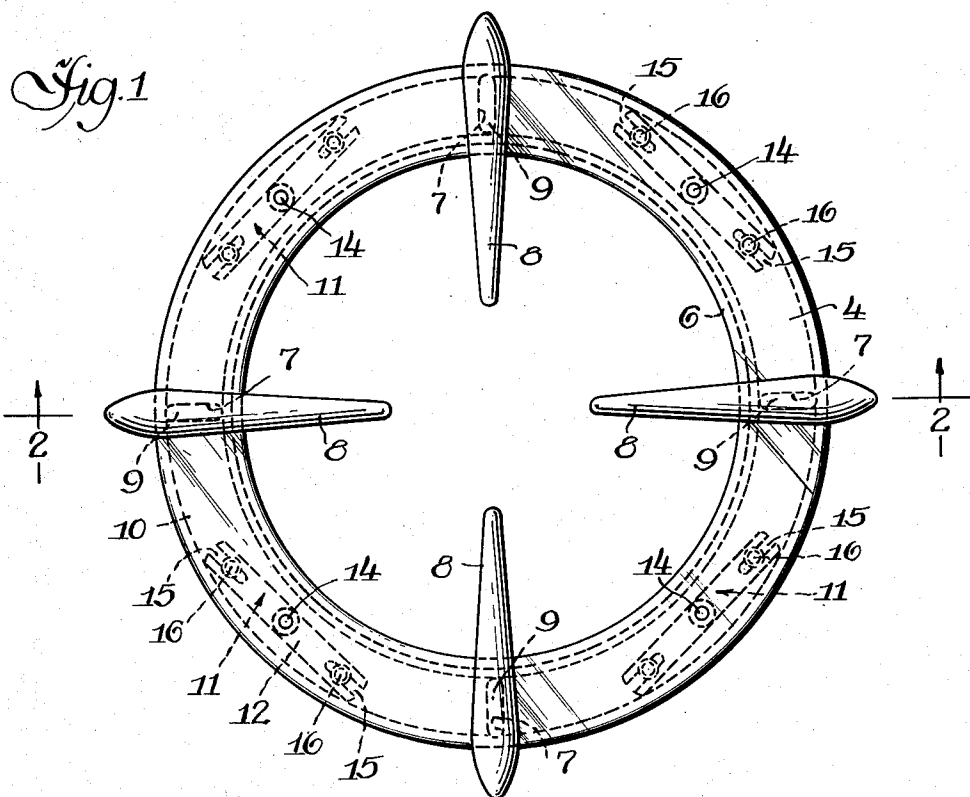
March 24, 1953

W. E. WILLIAMS

2,632,436

TOP BURNER GRATE

Filed Nov. 10, 1948



INVENTOR.
Willis E. Williams.
BY
Schneider & Dressler
Attys.

UNITED STATES PATENT OFFICE

2,632,436

TOP BURNER GRATE

Willis E. Williams, Shelbyville, Ind., assignor to
Chambers Corporation, a corporation of Indiana

Application November 10, 1948; Serial No. 59,372

6 Claims. (Cl. 126—214)

1

2

This invention relates to a top burner for cooking stoves, and particularly to means for automatically leveling the grate by the weight of a cooking vessel, to support the cooking vessel on a horizontal plane when it is placed on the grate.

Top burner grates as heretofore constructed have been rigid, so that if a grate or cooking vessel becomes warped, or if the cooking stove is not precisely level, cooking vessels do not have a horizontal surface to rest upon. The tilting of the cooking vessel may be sufficient to cause the vessel to slide off from the grate with, perhaps, spilling of the contents.

It is contemplated, in accordance with this invention, to construct a top burner grate for cooking stoves embodying a plurality of grate fingers that will automatically be raised or lowered by the weight of a cooking vessel, with or without its contents, so as to level the vessel in all directions when it is on the grate.

The present application is drawn to species of the broad invention disclosed and claimed in my co-pending application Serial No. 59,371, filed concurrently herewith.

In accordance with the disclosure of the present invention, the top grate burner includes an annular supporting ring, a plurality of individual grate fingers mounted on the supporting ring, each of said fingers having a projection depending below said supporting ring, a floating ring which is welded or otherwise joined to the projections depending from each grate finger, and a plurality of individual springs secured to the annular supporting ring and to the floating ring. The springs exert force against the floating ring to level all of the grate fingers, when a cooking vessel is placed on the grate. In practice, the strength or resiliency of these springs is chosen to accommodate them to the usual run of cooking vessels used on a cooking range.

Although the grate is designed primarily for gas ranges, it will be obvious that the advantages inherent in its structure may also be utilized in any type of cooking stove provided with top burners. The structure by which these advantages are attained will be described in the following specification, taken in conjunction with the accompanying drawing, in which:

Figure 1 is a top elevation of a top burner grate embodying the invention, showing the individual springs in dotted lines;

Fig. 2 is a cross sectional view, taken along the line 2—2 of Fig. 1;

Fig. 3 is a detail perspective view of one of the individual springs;

Fig. 4 is a fragmentary cross sectional view showing a modified form of spring secured between the annular supporting ring and the floating ring; and

Fig. 5 is a detail perspective view of the modified embodiment of the individual spring shown in Fig. 4.

In the drawings, the reference numeral 2 indicates the top of a cooking stove having an opening 3 positioned over a gas burner or similar heating unit. An annular supporting ring 4 is positioned in opening 3 with its outer edge resting on top 2, as indicated at 5. Annular supporting ring 4 preferably has a web 6 depending from its inner circumferential edge. Web 6 may be integral with ring 4, or it may be rigidly secured thereto, as by welding.

A plurality of apertures 7 extend through ring 4. Apertures 7 are spaced circumferentially around ring 4 to coincide with the number of grate fingers 8 to be provided on the grate. Apertures 7 are preferably non-circular so that grate fingers 8 will be held in proper alignment by the interengagement with each aperture 7 of a projection 9 which depends from the underside of each grate finger. Apertures 7 are illustrated as being of substantially rectangular area, but any non-circular shape will prevent the grate fingers from rotating in the apertures.

Projections 9 are usually integral with grate fingers 8, but they may be formed separately and secured to the grate fingers by welding or in any other suitable manner. The projections are of a size and shape to fit snugly in apertures 7 with just enough clearance to permit them to move vertically freely in the apertures. The length of projections 9 is great enough to allow each grate finger 8 to move vertically in either an upward or downward direction so that all the grate fingers can be adjusted vertically by the weight of a cooking vessel, with or without its contents, until they lie in the same horizontal plane. This feature of the structure herein described is essential to the present invention and is of paramount importance whenever the grate or any grate finger becomes warped, or whenever the cooking stove becomes tilted for any reason.

The means enabling any grate finger 8 to be moved automatically in a vertical direction to level all the grate fingers in a common horizontal plane under the weight of a cooking vessel placed on the grate comprises a floating ring 10 positioned underneath the annular supporting ring 4 and rigidly secured to the bottom surface of each depending projection 9. The floating ring may

be secured to projections 9 in any suitable manner, such as by welding or riveting. The welding of floating ring 10 to each projection 9 has the effect of ganging all the grate fingers into a unit and eliminates any possibility of relative slipping movement between floating ring 10 and any grate finger 8. This unity insures proper equalizing movement by all other grate fingers whenever any one grate finger is moved vertically.

Floating ring 10 is also connected to annular supporting ring 4 by means of a plurality of individual springs 11. Although the number of springs 11 may be varied, it is preferred to provide a spring 11 for each grate finger 8. Each spring 11 is positioned between two adjacent grate fingers. Each spring 11 has a bowed central portion 12 and an aperture 13 extending through the bowed portion. A rivet 14 driven through each aperture 13 holds bowed portion 12 of each spring 11 tightly against the underside of annular supporting ring 4.

Both ends of spring 11 are notched, as indicated at 15, and each notch fits under the head of a rivet 16. Rivets 16 are secured to floating ring 10 with their heads spaced above the top surface of the floating ring a distance sufficient to allow the ends of spring 11 to fit thereunder and to slide relative thereto as floating ring 10 is moved vertically. Springs 11 have a tendency to pull floating ring 10 upwardly towards annular supporting ring 4, whenever floating ring 10 is forced downwardly out of its normal position.

Pressure on any one grate finger 8 will move floating ring 10 downwardly to increase the distance between floating ring 10 and annular supporting ring 4 in that area. Equalizing force exerted by the other springs 11 will force the other grate fingers 8 upwardly until all the grate fingers are held in contact with the bottom of the cooking vessel substantially in a common horizontal plane. Notches 15 fitting under rivets 16 permit circumferential movement of each spring 11 relative to floating ring 10 whenever downward movement of one portion of floating ring 10 increases the amount of the bow in the adjacent spring 11, or upward movement of the floating ring flattens spring 11.

In the embodiment of the invention illustrated in Figs. 4 and 5, the spring 17 is secured tightly to floating ring 18 at one end by rivet 19. A rivet 20 loosely secures the bowed portion 21 to the underside of annular supporting ring 22. The aperture 23, through which rivet 20 passes, is elongated so that spring 17 will permit vertical movement of floating ring 18 in either an upward or downward direction relative to annular supporting ring 22.

Although two embodiments of the invention have been described in considerable detail, it will be understood that the description is intended to be illustrative, rather than restrictive, as many details may be modified or changed without departing from the spirit or scope of the invention. Accordingly, I do not desire to be restricted to the exact structure described.

I claim:

1. A top burner grate for cooking stoves comprising an annular supporting ring having a plurality of non-circular apertures therein, a plurality of grate fingers, each of said grate fingers having a projection depending through one of said apertures, a floating ring rigidly secured to the bottom surface of each of said projections, and a plurality of individual springs secured between said annular supporting ring and said

floating ring, said springs urging said floating ring to an equalizing position holding all of said grate fingers in a common horizontal plane under the weight of a cooking vessel placed on said grate.

2. A top burner grate for cooking stoves comprising an annular supporting ring having a plurality of non-circular apertures therein, a plurality of grate fingers, each of said grate fingers having a projection depending through one of said apertures, a floating ring rigidly secured to the bottom surface of each of said projections, a plurality of individual springs each rigidly secured at its center portion to the underside of said annular supporting ring, and a plurality of pairs of button head rivets projecting upwardly from said floating ring, the ends of each of said springs being slidably held under said button head rivets, said springs urging said floating ring to an equalizing position holding all of said grate fingers in a common horizontal plane under the weight of a cooking vessel placed on said grate.

3. A top burner grate for cooking stoves comprising an annular supporting ring having a plurality of non-circular apertures therein, a plurality of grate fingers, each of said grate fingers having a projection depending through one of said apertures, a floating ring rigidly secured to the bottom surface of each of said projections, and a plurality of individual springs each rigidly secured at one end to said floating ring, the center portion of each of said springs being loosely held against the underside of said annular supporting ring, said springs urging said floating ring to an equalizing position holding all of said grate fingers in a common horizontal plane under the weight of a cooking vessel placed on said grate.

4. A top burner grate for cooking stoves comprising an annular supporting ring, a plurality of grate fingers carried by said supporting ring, each of said grate fingers having a projection depending below said supporting ring, a floating ring engaging the bottom surfaces of said projections, a plurality of individual springs positioned between said supporting ring and said floating ring, each of said springs having a bowed center portion and notched end portions, and a pair of button head rivets projecting upwardly from said floating ring adjacent each of said springs, each of said springs having its bowed center portion rigidly secured to the underside of said supporting ring, the notched ends of each spring being slidably held under said button head rivets.

5. A top burner grate for cooking stoves comprising an annular supporting ring, a plurality of grate fingers carried by said supporting ring, each of said grate fingers having a projection depending below said supporting ring, a floating ring engaging the bottom surfaces of said projections, a plurality of individual springs positioned between said supporting ring and said floating ring, each of said springs having a bowed center portion provided with an elongated aperture, and a button head rivet passing through said aperture to loosely secure each spring to said supporting ring, one end of each spring being rigidly secured to said floating ring.

6. A top burner grate for cooking stoves comprising an annular supporting ring, a plurality of grate fingers carried by said supporting ring, a floating ring engaging each of said grate fingers, and spring means spaced intermediately between each pair of said fingers, said means exerting constant force to maintain said supporting ring and

5

said floating ring in predetermined relationship to hold each of said fingers in a common horizontal plane under the weight of a cooking vessel placed on said grate.

WILLIS E. WILLIAMS.

REFERENCES CITED

The following references are of record in the file of this patent:

	Number
	540,373
5	950,119
	1,236,327
	2,234,550

	Number
10	363,507

6

UNITED STATES PATENTS

Name	Date
Werle -----	June 4, 1895
Ruby -----	Feb. 22, 1910
Mace -----	Aug. 7, 1917
Bridgeman -----	Mar. 11, 1941

FOREIGN PATENTS

Country	Date
Germany -----	Nov. 10, 1922